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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,760	03/22/2004	Paul Anthony Bristow	149101-1	1252
23413	7590	12/12/2007	EXAMINER	
CANTOR COLBURN, LLP			HUSON, MONICA ANNE	
55 GRIFFIN ROAD SOUTH			ART UNIT	PAPER NUMBER
BLOOMFIELD, CT 06002			1791	
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			12/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/805,760	BRISTOW ET AL.	
	Examiner	Art Unit	
	Monica A. Huson	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 September 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 2-16 and 18-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 2-16 and 18-23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

This office action is in response to the Amendment filed 24 September 2007.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Matich (U.S. Patent 6,224,706). Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 4, lines 15-30, 42-54), wherein the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); wherein thermoforming the substrate sheet further comprises heating a substrate sheet to a temperature (Column 4, lines 27-30; It is noted heating the sheet is the positively-claimed method step, while “[allowing] lofting of fibers” is only an intended use of the heating step, and therefore, not a positively-recited method step.); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-11, 13, 14, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matich, in view of Masui et al. (U.S. Patent 5,968,629).

Regarding Claims 3 and 21, Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 15-30), wherein the substrate is an air-

permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40). Although Matich shows using an air-permeable substrate, he does not specifically show using a fiber-reinforced plastic material of a specific void content. Masui et al., hereafter "Masui," show that it is known to carry out a method of forming a layered article, wherein the substrate is a fiber-reinforced plastic material having a void content of 50 vol% (Column 2, lines 33-36). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's fiber-reinforced plastic material as the substrate in Matich's molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 2, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method wherein the film layer further comprises a compatible layer (Column 4, lines 39-40; It is being interpreted that the layer of paint or print is compatible with the substrate 31), meeting applicant's claim.

Regarding Claims 4 and 5, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not show a specific void content for the substrate. Masui shows that it is known to carry out a method wherein the void content is 50vol% (Column 2, lines 33-35). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's fiber-reinforced plastic material with a void content of 50vol% as the substrate in Matich's molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 6, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not specific the dimension of a fiber filler in the substrate material. Masui shows that it is known to carry out a method wherein filler fibers having a fiber diameter of about 6um to about 25um (Column 6, lines 39-40), and a fiber length of about 2mm to about 75mm (Column 6, lines 40-41). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's fiber dimensions in the substrate during Matich's molding process in order to permit the desired percentage of voids in the substrate (see Masui, Column 6, lines 46-47).

Regarding Claim 7, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not show using a foraminated substrate. Masui shows that it is known to carry out a method wherein the shaped substrate is foraminated (Column 5, lines 21-22; it is being interpreted that "expanded" implies a foamed structure, which is functionally equivalent to a foraminated structure.). It would have been prima facie obvious to one of

ordinary skill in the art at the time the invention was made to use Masui's foraminated substrate as that during Matich's molding process in order to enhance the acoustic absorbability of the final product.

Regarding Claim 8, Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 15-30), wherein the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40). Although Matich shows using an air-permeable substrate, he does not specifically show using an open-celled fiber-reinforced plastic material. Masui shows that it is known to carry out a method of forming a layered article, wherein the substrate is an open-celled fiber-reinforced plastic material (Column 5, lines 21-23; it is being interpreted that "expanded" implies an open-celled structure). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's open-celled fiber-reinforced plastic material as the substrate in Matich's molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claims 9 and 10, Matich shows the process as claimed as discussed in the rejection of Claim 8 above, but he does not show a specific percentage of fibers and resin in his substrate. Masui shows that it is known to carry out a method wherein the substrate sheet comprises 50wt% plastic material and 50wt% of fibers (Column 6, lines 19-20). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's specific composition of the substrate as that in Matich's molding process in order to enhance the acoustic absorbability of the final product.

Regarding Claim 11, Matich shows the process as claimed as discussed in the rejection of Claim 9 above, but he does not show using a particular plastic in his substrate. Masui shows that it is known to carry out a method wherein the plastic material of the substrate is polyamide (Column 5, line 60). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's specific polymer substrate as that during Matich's molding process in order to enhance the acoustic absorbability of the final product.

Regarding Claim 13, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method further comprising disposing a tie-layer between the shaped substrate and the film layer (Figure 4, element 34), meeting applicant's claim.

Regarding Claim 14, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method wherein thermoforming the substrate sheet further comprises heating a substrate sheet to a temperature (Column 4, lines 27-30; It is noted heating the sheet is the positively-claimed method step, while “[allowing] lofting of fibers” is only an intended use of the heating step, and therefore, not a positively-recited method step.), meeting applicant’s claim.

Regarding Claim 16, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not show using non-woven scrim as part of his substrate. Masui shows that it is known to carry out a method wherein the substrate sheet further comprises a non-woven scrim disposed on the surface of the substrate sheet (Column 6, lines 31-32). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui’s non-woven sheet on the substrate during Matich’s molding process in order to improve the reinforcement of the substrate.

Claims 12, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matich and Masui, further in view of Holtrop et al. (U.S. Patent 4,529,641).

Regarding Claim 12, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not specifically show using plug-assist vacuum molding. Holtrop shows a method wherein the substrate sheet is thermoformed with a membrane assisted vacuum pressure forming method with plug assist (Column 5, lines 3-5). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Holtrop’s plug assist vacuum molding as that of Matich’s vacuum molding process in order to facilitate the most efficient vacuum molding available.

Regarding Claim 18, Matic shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising heating a substrate sheet to a temperature (Column 4, lines 27-30; It is noted heating the sheet is the positively-claimed method step, while “[allowing] lofting of fibers” is only an intended use of the heating step, and therefore, not a positively-recited method step.), disposing the substrate sheet against a membrane-assisted pressure box (Column 4, lines 15-18); pushing the substrate sheet onto a mold to form a shaped substrate (Column 4, lines 31-37); heating a film layer (Column 4, lines 27-28); pulling a vacuum through the shaped substrate (Column 4, lines 31-37); and pulling the film layer against the shaped substrate to form the layered article (Column 4, lines 21-36). Although Matich shows using an air-permeable substrate, he does not specifically show using a fiber-reinforced plastic material of a specific void content. Masui shows that it is known to carry out a method of forming a layered article, wherein the substrate is a fiber-reinforced plastic

material having a void content of 50 vol% (Column 2, lines 33-36). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's fiber-reinforced plastic material as the substrate in Matich's molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 19, Matich shows the process as claimed as discussed in the rejection of Claim 18 above, but he does not show a specific void content for the substrate. Masui shows that it is known to carry out a method wherein the void content is 50vol% (Column 2, lines 33-35). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Masui's fiber-reinforced plastic material with a void content of 50vol% as the substrate in Matich's molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 20, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method further comprising disposing a tie-layer between the shaped substrate and the film layer (Figure 4, element 34), meeting applicant's claim.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matich, Masui, and Holtrop, further in view of Nagayama et al. (U.S. Patent 5,854,149). Matich shows the process as claimed as discussed in the rejection of Claim 14 above, but he does not show heating to a temperature about 232C to about 371C. Nagayama shows that it is known to carry out a method wherein the heating temperature is 250C (Column 28, lines 57-66). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nagayama's processing temperature during Matich's thermoforming process in order to properly process and form the specific molding material without overheating or underheating.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matich. Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 4, lines 15-30, 42-54), wherein the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40). Matich shows a cooling step after the substrate and film have been joined. However, selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results

(See MPEP 2144.04 (IV)(C)). Therefore, It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to include an intermediate cooling step in order to avoid unwanted deformation of the substrate prior to the attachment of the film.

Response to Arguments

Applicant's arguments filed 24 September 2007 have been fully considered but they are not persuasive.

Applicant contends that Matich does not pull a vacuum through the substrate. This is not persuasive as Matich discusses the vacuum that is pulled through the substrate at Column 3, lines 31-40).

Applicant contends that Matich does not show pulling a vacuum through a shaped substrate. This is not persuasive because even a flat substrate has a "shape". Furthermore, Matich does discuss an alternate embodiment wherein the substrate is specifically shaped prior to the application of the vacuum (Column 4, lines 42-54).

Applicant contends that Matich does not show pulling a film layer onto the substrate. This is not persuasive as a film layer is element 31 in Figure 3. Note that in Figure 4, the film layer 31 has been pulled onto the shaped substrate. Since the substrate is below the film layer, it will implicitly be shaped prior to the pulling of the film layer thereto. After the film layer is pulled onto the shaped substrate, a layered article is formed.

Applicant contends that Matich and Masui are not properly combinable. This is not persuasive as motivation is clearly found in Masui at Column 1, lines 65-67: using a porous article allows for excellent sound absorption. It is conceivable that this property would be desirable in Matich's molding process, as it is applicable to structural articles such as walls and roof tiles. Applicant contends that using Masui's material in Matich's process would render it unsatisfactory for its intended purpose. This is not persuasive because Matich's process removes air from the substrate, however it does not remove the pores. Therefore, the pores would still be present and useful for sound absorption. It is maintained that Matich and Masui would be properly combinable and suggest the instant invention. It is noted that the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant (See MPEP 2144).

Applicant contends that Masui does not suggest the invention because he discloses a void content of not less than 50%. This is not persuasive because "not less than 50%"

implicitly *includes* 50%. The claims' endpoint for void content is "about 50%". It is maintained that Masui's teaching of 50% clearly suggests the claimed "about 50%".

Applicant contends that the claimed "foraminated" must be read in light of the specification (see specification, para. 0022). This is not persuasive because although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is maintained that Matich shows a foraminated substrate.

Applicant contends that Matich does not show heating the substrate to loft the fibers. This is not persuasive because heating the sheet is the only positively-claimed method step, while "[allowing] lofting of fibers" or "to loft the fibers" is only an intended use of the heating step, and therefore, not a positively-recited method step.

With respect to Claim 12, applicant contends that Holtrop does not show thermoforming with a membrane vacuum plug assist. This is not persuasive because Holtrop clearly discloses that a vacuum can assist in thermoforming a porous article.

With respect to Claims 18-20, applicant contends that the office action does not explain how Holtrop shows the claims. This is not persuasive because Matich clearly shows these claims (as was written in the office action). These claims are dependent upon claim 12, and as a result appear in the section wherein claim 12 is rejected.

With respect to Claim 15, applicant contends that this claim is patentable for the same reasons as the previous claims. Further, applicant contends that there is no motivation to combine Nagayama with Matich. This is not persuasive because both patents answer problems related to molding/thermoforming porous substrates and attaching additional layers to the porous substrates.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A. Huson whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 7:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Monica A Huson

December 8, 2007